

Pharmacist Managed Asthma Clinics in Partnership with Montana Health Care and Benefits Division

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406-202-2781

Program Background

- First Pharmacist Managed Asthma Clinic (PMAC)
 - 2006 at Partnership Health Center
- Spring 2010 - PMACs receive funding from Montana Asthma Control Program (MACP)
 - Allowed for expansion into multiple pharmacy settings
 - Independent & chain retail pharmacies, UM student health center, hospital outpatient clinical pharmacy
- 2011 - Partnership formed with Montana Health Care and Benefits Division (HCBD)

PMAC SOM HCBD Agreement

- HCBD - refer beneficiaries with asthma to PMAC
- PMAC provide beneficiaries with comprehensive asthma self-management education (AS-ME)
 - Up to 3 visits with peak flow meter & spacer
 - State reduced copays on controller medications by 1 tier
 - ICS, LABA, LTRA
 - Example - ICS from Tier C (\$40/month) to Tier B (\$15/month)

Services/Information Provided

- Education regarding disease etiology/pathophysiology & environmental triggers
- Medication counseling & explanation of treatment outcomes
- Inhaler device training & practice using In-check Dial
- Peak Flow Meter & Valved Holding Chamber instruction/demonstration
- Simple spirometry & FEV1 monitoring
- Smoking cessation counseling and support
- Written Asthma Action Plan
- Assessment of control (Asthma Control Test administered) and recommendations for changes in therapy
- Coordination of care with PCP, school nurses, social workers, etc.

PMAC Goals

- Improve the level of control and QOL for those with asthma
- Ensure individuals with asthma receive education and care based on the NAEPP guidelines
- Determine the feasibility and value of PMACs
- Develop and improve PMAC sites while expanding to new sites
 - Train additional pharmacists as AE-C
- Strengthen partnership with SOM
 - Gain PMAC referrals
 - Gather economic outcomes to encourage reimbursement of pharmacist based asthma services

hhs

Patient Name: Cool, Joe Age: 59 yrs Medical Record #: 65497589

First Diagnosed: 1976 Best PF: _____ Spirometry Date: _____ Severity Classification: Persistent - 02/25/10

Current Medications:

<input checked="" type="checkbox"/> Short acting beta agonist	<input checked="" type="checkbox"/> Low dose ICS	<input checked="" type="checkbox"/> Medium dose ICS	<input type="checkbox"/> High dose ICS
<input type="checkbox"/> Long acting beta agonist	<input type="checkbox"/> Oral corticosteroid	<input type="checkbox"/> Leukotriene Modifier	<input type="checkbox"/> Other _____

Last Visit **Today's Visit**

<p><u>2/25/2010</u></p> <p>Acute attack</p> <p>70 inches</p> <p>No</p> <p>%Pred=62</p> <p>16</p>	<p>Date _____</p> <p>Reason <input type="checkbox"/> Acute attack <input type="checkbox"/> Asthma F/U <input type="checkbox"/> PE <input type="checkbox"/> Non-asthma related <input type="checkbox"/> ER/Hospital F/U</p> <p>Current Symptoms <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Height _____ (in) _____ (cm)</p> <p>Weight _____ (lb) _____ (kg)</p> <p>Updated Flu Shot <input type="checkbox"/> Yes <i>Date received</i> _____ <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Declined</p> <p>Updated Pneumo Shot <input type="checkbox"/> Yes <i>Date received</i> _____ <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Declined</p> <p>Today's Spirometry and Peak Flow FEV1 _____ %Predicted _____ Peak Flow _____</p> <p>ACT Score _____</p>
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Level of Asthma Control

	Components of Control	Well Controlled	Not Well Controlled	Very Poorly Controlled
NWC	Symptoms during last 2-4 wks	<input type="checkbox"/> <= 2 days/wk	<input type="checkbox"/> > 2 days/wk	<input type="checkbox"/> Throughout the day
	Nighttime Awakenings	<input type="checkbox"/> <= 2 x/mth	<input type="checkbox"/> 1-3 x/wk	<input type="checkbox"/> >= 4x/week
NWC	SABA Use (not exercise related)	<input type="checkbox"/> <= 2 days/wk	<input type="checkbox"/> > 2 days/wk	<input type="checkbox"/> Several times daily
NWC	Interference w/normal activity	<input type="checkbox"/> None	<input type="checkbox"/> Some limitation	<input type="checkbox"/> Extremely limited
NWC	FEV1 or Peak Flow	<input type="checkbox"/> > 80%	<input type="checkbox"/> 60-80%	<input type="checkbox"/> < 60%
NWC	ACT Score	<input type="checkbox"/> > 20 points	<input type="checkbox"/> 16-19 points	<input type="checkbox"/> <= 15 points
	Risk	<input type="checkbox"/> 0-1 x/yr	<input type="checkbox"/> >= 2 x/yr	
Recommended action for treatment		. Maintain current treatment . Regular f/u to evaluate CONTROL every 1-6 mths . Consider STEP down if well controlled >= 3 mths	. Increase treatment intensity by ONE STEP . F/u to evaluate CONTROL in 2-6 wks	. Consider oral steroids . Increase treatment intensity by ONE-TWO STEPS

<p>Persistent</p> <p>Step 3</p>	<p>Severity <input type="checkbox"/> Intermittent <input type="checkbox"/> Persistent</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;"> <p>Recommended "preferred" STEP treatment</p> </td> <td style="width: 15%;"> <p><input type="checkbox"/> STEP 1</p> <p>. SABA PRN</p> </td> <td style="width: 15%;"> <p><input type="checkbox"/> STEP 2</p> <p>. Low dose ICS</p> </td> <td style="width: 15%;"> <p><input type="checkbox"/> STEP 3</p> <p>. Low dose ICS + LABA, LTRA or Medium dose ICS</p> </td> <td style="width: 15%;"> <p><input type="checkbox"/> STEP 4</p> <p>. Medium dose ICS + LABA . Consider specialty consult</p> </td> <td style="width: 15%;"> <p><input type="checkbox"/> STEP 5</p> <p>. High dose ICS + LABA . Consider specialty consult</p> </td> <td style="width: 15%;"> <p><input type="checkbox"/> STEP 6</p> <p>. High dose ICS + LABA + Oral corticosteroid . Consider specialty consult</p> </td> </tr> </table>	<p>Recommended "preferred" STEP treatment</p>	<p><input type="checkbox"/> STEP 1</p> <p>. SABA PRN</p>	<p><input type="checkbox"/> STEP 2</p> <p>. Low dose ICS</p>	<p><input type="checkbox"/> STEP 3</p> <p>. Low dose ICS + LABA, LTRA or Medium dose ICS</p>	<p><input type="checkbox"/> STEP 4</p> <p>. Medium dose ICS + LABA . Consider specialty consult</p>	<p><input type="checkbox"/> STEP 5</p> <p>. High dose ICS + LABA . Consider specialty consult</p>	<p><input type="checkbox"/> STEP 6</p> <p>. High dose ICS + LABA + Oral corticosteroid . Consider specialty consult</p>
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Other Key Clinical Indicators

<p>Yes / ETS = NO (Ts)</p> <p>(GERD)</p> <p>(M A) (E C)</p>	<p>ER visits/hospitalizations since last visit? <input type="checkbox"/> 0 or _____ times</p> <p># of days work/school missed since last visit? <input type="checkbox"/> 0 or _____ times</p> <p>Smoking <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Former <input type="checkbox"/> Environmental tobacco smoke exposure in home</p> <p>Triggers <input type="checkbox"/> Animals <input type="checkbox"/> Pollens/seasonal <input type="checkbox"/> Mold <input type="checkbox"/> Tobacco smoke</p> <p><input type="checkbox"/> Exercise <input type="checkbox"/> Respiratory infections <input type="checkbox"/> Medications <input type="checkbox"/> Other _____</p> <p>Comorbidities <input type="checkbox"/> Sinusitis/rhinitis <input type="checkbox"/> Stress/depression <input type="checkbox"/> Obesity <input type="checkbox"/> OSA</p> <p><input type="checkbox"/> GERD <input type="checkbox"/> Other _____</p> <p>Referrals <input type="checkbox"/> Pulmonary/allergy: Year _____ <input type="checkbox"/> Smoking cessation: Year _____</p> <p>Asthma Action Plan given/reviewed today? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Asthma education today <input type="checkbox"/> Medication adherence <input type="checkbox"/> Inhaler technique <input type="checkbox"/> Environ. control <input type="checkbox"/> Comorbidities</p> <p>Updated medication list (if changed today) <input type="checkbox"/> Short acting beta agonist <input type="checkbox"/> Low dose ICS <input type="checkbox"/> Medium dose ICS <input type="checkbox"/> High dose ICS</p> <p><input type="checkbox"/> LABA <input type="checkbox"/> OCS <input type="checkbox"/> Leukotriene Modifier <input type="checkbox"/> Other _____</p>
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Action Steps **Notes**

=>Flu Vac =>AAP =>Spirometry =>Smoking Cessation
=>ACT
=>Education: Med Adherence, Inhaler Tech, Envir Control, Comorbidities

Notes

University of Montana Community Pharmacy Asthma Clinics
Skaggs School Of Pharmacy
32 Campus Drive Missoula, MT 59812
P: (406) 243-4610 F: (406) 243-4353

Date: _____

Dear Dr. _____,

Today I had the pleasure of seeing your patient, _____ (DOB: _____), for asthma education and assessment of current asthma control. This consult was _____ visit performed at _____ request.

The following information was gathered through an in-depth review:

Current Asthma Medications: _____

Daytime Symptoms: _____ Nighttime Symptoms: _____
Rescue Inhaler use: _____
Normal PEF (if measured): _____ Pulmonary function testing: FEV1: ___ FVC: ___ FEV1/FVC: ___
Hospital visits (asthma related) in the past 3 months: ___ Emergency Room visits (asthma related) in the past 3 months: ___

Asthma Control Test Score: ___

Assessment: (based on NIH guidelines)

Asthma Severity: ___ Intermittent ___ Persistent

Asthma Control: ___ Well Controlled ___ Not Well Controlled ___ Very Poorly Controlled

Current Problem(s):

___ Overuse of short-acting beta agonist ___ Poor compliance with controller medication(s)
___ Poor inhaler technique ___ Poor environmental/allergen/trigger control
___ Other: _____

Suggested follow-up:

___ With physician in _____ ___ With pharmacist in _____

Asthma Action Plan Given: Y N

Summary of visit and recommendations:

Thank you for the opportunity to participate in the care of _____ and for considering these recommendations. Please feel free to contact me at (406) 243-4610 if you have any questions or feedback regarding this visit.

Sincerely,

Rory Johnson, PharmD., AE-C

PMAC SOM HCBD Results

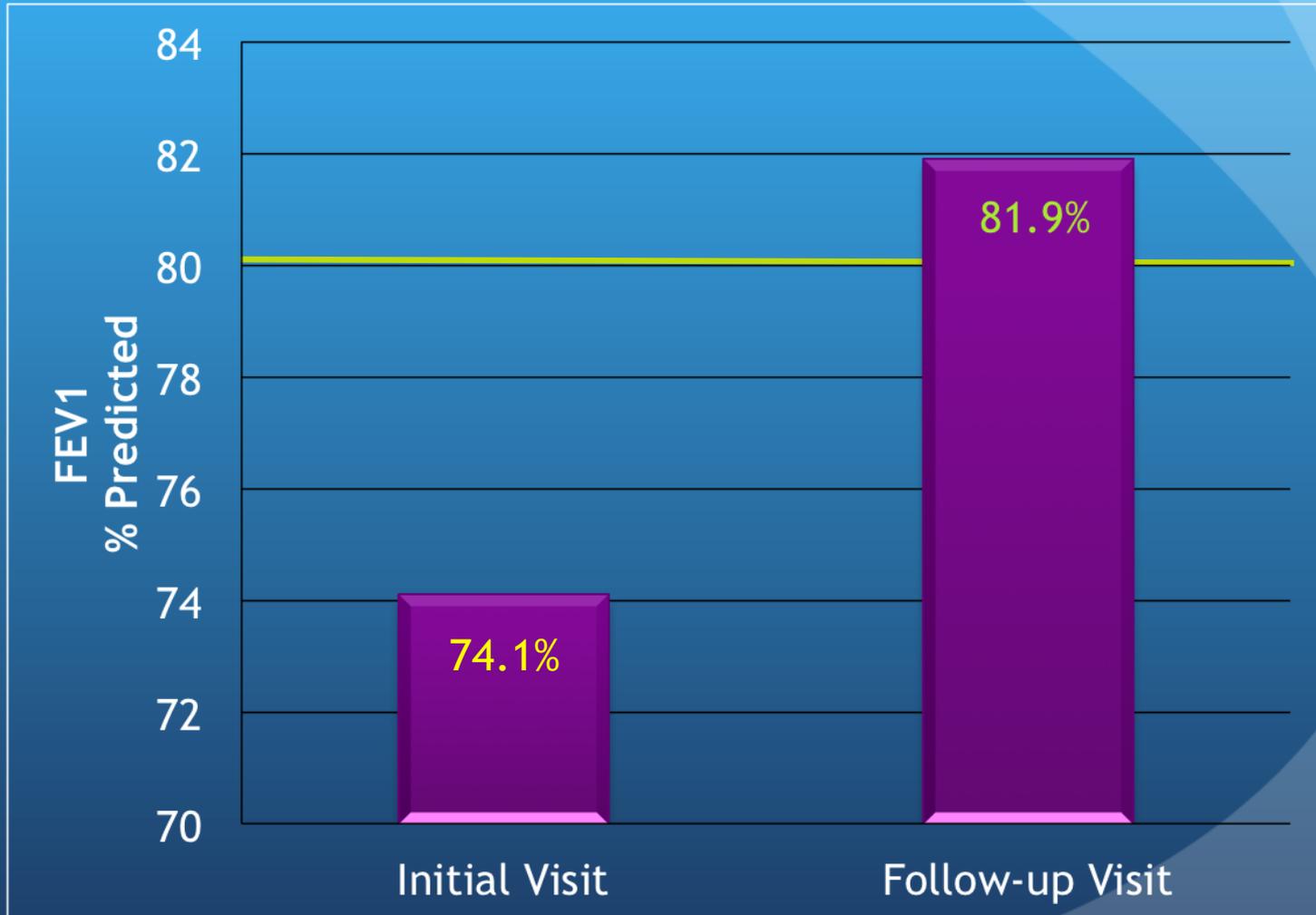
- PMAC collected outcomes
 - ACT scores
 - FEV₁ monitoring
- Claims data analysis performed by Montana Association of Health Care Purchasers (MAHCP)
 - August 2013 and April 2015
 - Cost Per Unit of Risk
 - Total Asthma Related Costs Per Member per Month (PMPM)
 - Medical vs. Prescription
 - Asthma Related ED visits
 - Asthma Related Rx claims by class

ACT Scores

- Participants >12 years with at least 1 follow-up visit
 - N=26



FEV₁ Monitoring (n=8)



CLAIMS DATA OVERVIEW

- Participants and Non-Participants
 - 2012 - **Participants** (n=31) vs. **Non-Participants** (n=265)
 - 2014 - **Participants** (n=16) vs. **Non-Participants** (n=86)
 - Both - Participated in asthma program both years offered (n=5)
- Compare 12 months prior to program vs. 12 months during program
- Groups similar characteristics
 - Age, Gender, Risk, Population Type, Location
- Individuals excluded
 - COPD diagnosis
 - No asthma related medication in prior year



Asthma Program Outcomes Analysis

State of Montana
Claims Paid Apr2011-Jul2013

	Asthma Program Participants				Asthma Program Non-Participants			
	Prior to Program	During Program	Post Program		Prior to Program	During Program	Post Program	
	Apr2011-Mar2012	Apr2012-Mar2013	Apr2013-Jul2013	% Change P1 to P2	Apr2011-Mar2012	Apr2012-Mar2013	Apr2013-Jul2013	% Change P1 to P2
Gender								
Female	22	22	19		160	160	138	
Male	9	9	8		105	105	91	
Total	31	31	27		265	265	229	
Dependent Status								
Policyholder	19	19	15		66	66	55	
Spouse	8	8	8		161	161	144	
Dependent	4	4	4		38	38	30	
Total	31	31	27		265	265	229	
Population Type								
Active	26	26	21		234	234	198	
Retiree <65	2	2	3		18	18	12	
Retiree >65	3	3	3		13	13	19	
Total	31	31	27		265	265	229	
Relative Risk Scores*								
Age/Sex Risk Score	1.668	1.728	1.653	3.6%	1.376	1.446	1.424	5.1%
Medical+Rx Y1 Risk Score (Concurrent)	2.112	1.961	0.609	-7.2%	2.283	1.852	1.234	-18.9%
Medical+Rx Y2 Risk Score (Prospective)	2.280	2.161	0.965	-5.2%	2.292	1.883	1.408	-17.9%
*Normalized to National Benchmark								
Cost Per Unit of Risk								
Cost of Care Per Unit of Y1 Risk	\$3,290	\$2,944	n/a	-10.5%	\$3,638	\$4,462	n/a	22.6%
Total Medical & Rx Costs								
Medical \$ Paid	\$90,033	\$67,705	\$25,187	-24.8%	\$933,701	\$1,063,294	\$294,168	13.9%
Rx \$ Paid	\$59,413	\$55,894	\$17,202	-5.9%	\$647,370	\$675,834	\$209,114	4.4%
Medical + Rx \$	\$149,445	\$123,600	\$42,389	-17.3%	\$1,581,071	\$1,739,128	\$503,282	10.0%
Total Asthma Related Medical & Rx Costs *								
Medical \$ Paid	\$6,634	\$2,709	\$326	-59.2%	\$52,623	\$145,212	\$5,942	175.9%
Rx \$ Paid	\$37,418	\$38,218	\$12,214	2.1%	\$211,487	\$177,221	\$59,200	-16.2%
Medical + Rx \$	\$44,052	\$40,927	\$12,540	-7.1%	\$264,110	\$322,432	\$65,141	22.1%
* Med = Primary Dx of Asthma & Rx = Asthma Related Rx								
Medical & Rx Costs PMPM								
Medical \$ Paid PMPM	\$242	\$187	\$225	-22.7%	\$314	\$337	\$323	7.5%
Rx \$ Paid PMPM	\$160	\$154	\$154	-3.3%	\$217	\$214	\$229	-1.5%
Medical + Rx \$ Paid PMPM	\$402	\$341	\$378	-15.0%	\$531	\$551	\$552	3.8%
Asthma Related Medical & Rx Costs PMPM *								
Medical \$ Paid PMPM	\$18	\$7	\$3	-58.0%	\$18	\$46	\$7	160.4%
Rx \$ Paid PMPM	\$101	\$106	\$109	5.0%	\$71	\$56	\$65	-20.9%
Medical + Rx \$ Paid PMPM	\$118	\$113	\$112	-4.5%	\$89	\$102	\$71	15.2%
* Med = Primary Dx of Asthma & Rx = Asthma Related Rx								

Cost Per Unit of Risk

Year	Prior to Program (P1)	During Program (P2)	Change P1 to P2	Prior To Program (P1)	During Program (P2)	Change P1 to P2
2012	\$3,290	\$2,944	-10.5%	\$3,638	\$4,462	22.6%
2014	\$4,483	\$9,803	118.7%	\$3,089	\$4,155	34.5%
Both	\$13,674	\$8,364	-38.8%			

NOT CONCLUSIVE

- Initial Thoughts (2012)
 - Risk score for each group is similar, but care sought out & delivered to program participants is overall more efficient, of higher quality, and less expensive.
- Risk is not specific to asthma

Asthma Related Costs PMPM

- Medical \$ Paid PMPM

Year	Prior to Program (P1)	During Program (P2)	Change P1 to P2	Prior To Program (P1)	During Program (P2)	Change P1 to P2
2012	\$18	\$7	-58.0%	\$18	\$46	160.4%
2014	\$19	\$30	60.1%	\$35	\$89	150.9%
Both	\$14	\$16	14.6%			

Asthma Related ED Visits

- ED visits/100

Year	Prior to Program (P1)	During Program (P2)	Change P1 to P2	Prior To Program (P1)	During Program (P2)	Change P1 to P2
2012	32.3	0	-100.0%	30.2	15.1	-50.0%
2014	62.5	0	-100.0%	34.5	23.3	-32.6%
Both	0	0	N/A			

Asthma Related Costs PMPM

- Rx \$ Paid PMPM

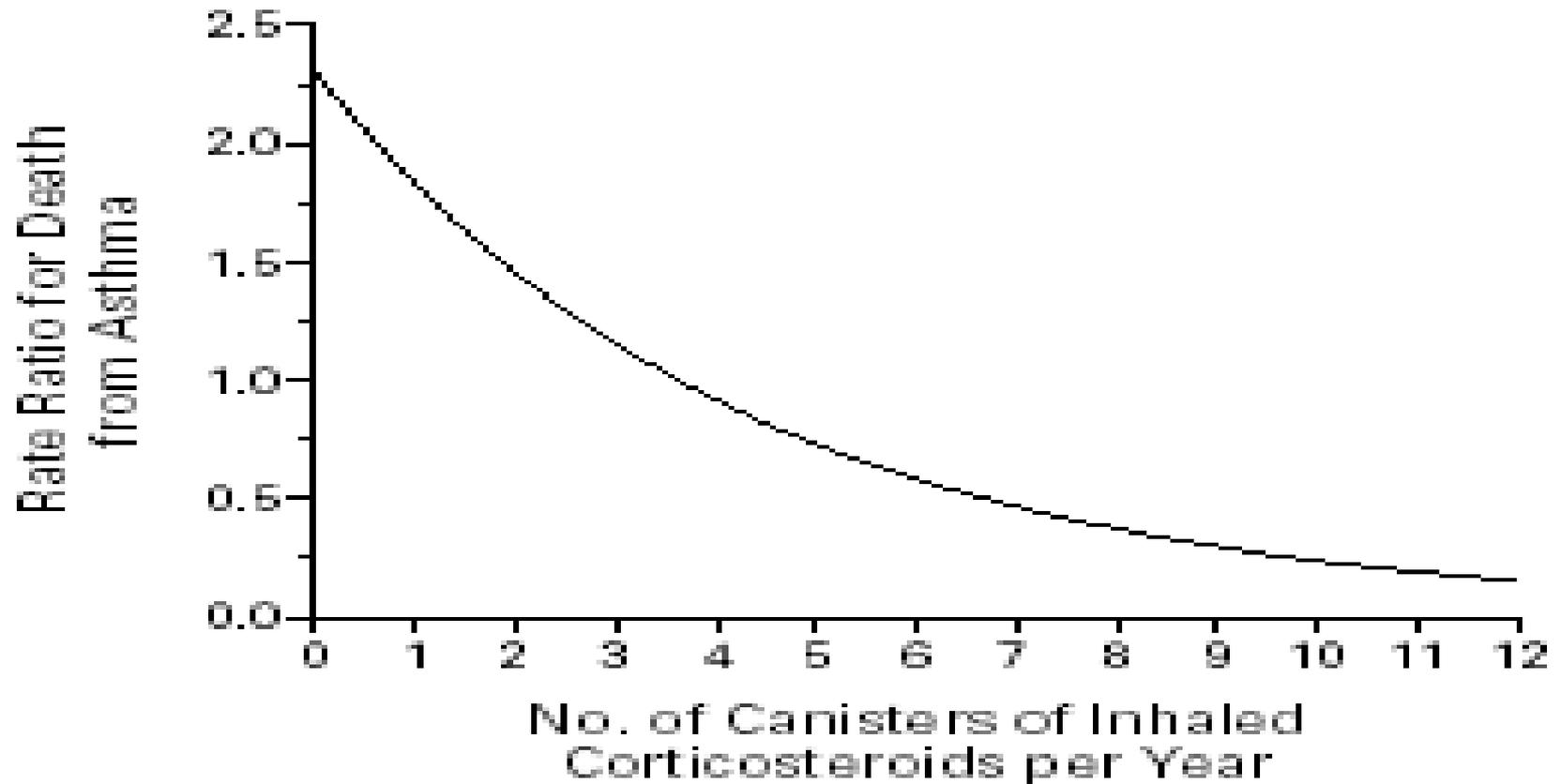
Year	Prior to Program (P1)	During Program (P2)	Change P1 to P2	Prior To Program (P1)	During Program (P2)	Change P1 to P2
2012	\$101	\$106	5.0%	\$71	\$56	-20.9%
2014	\$90	\$124	36.9%	\$143	\$111	-22.9%
Both	\$118	\$159	32.4%			

Asthma Related Rx Claims by Class

2012	Prior to Program (P1)	During Program (P2)	Change P1 to P2	Prior To Program (P1)	During Program (P2)	Change P1 to P2
SABA ?	87	93	6.9%	874	789	-9.7%
ICS	34	49	44.1%	124	105	-15.3%
LTRA	40	44	44.1%	334	319	-4.5%

2014	Prior to Program (P1)	During Program (P2)	Change P1 to P2	Prior To Program (P1)	During Program (P2)	Change P1 to P2
SABA ?	80	103	28.8%	510	420	-17.6%
ICS	5	17	240.0%	100	64	-36.0%
LTRA	20	37	85.0%	188	212	12.8%

Risk of Death vs. ICS Use



Adapts from: Suissa et al. *N Engl J Med.* 2000;343:332-336.

Conclusions

- Increased controller medication adherence among program participants may reduce asthma related medical costs.
 - Asthma related medical costs PMPM appear to be reduced for program participants; however, asthma related Rx costs PMPM appear to be greater for program participants.
 - Rx claims for controller medications (ICS, LABA, & LTRA) increased significantly for program participants versus non-participants.
- Small participant group size can result in a few individuals skewing results.
- More extensive claims analysis is needed for more conclusive results.

Rory,

Mon. 12/1/11

As the Thanksgiving holiday passed and I surveyed all I have to be thankful about near the top of the list was/is the healthcare I got from you - it has changed my life:

⊕ asthma since July

⊕ albuterol since Aug. 1

2X "wind" during hard exertion.

aerobic ↔ anaerobic No problem.

Thanks to your expertise and patient explanations this old coot has been turned into a new man.

With Much
Gratitude,